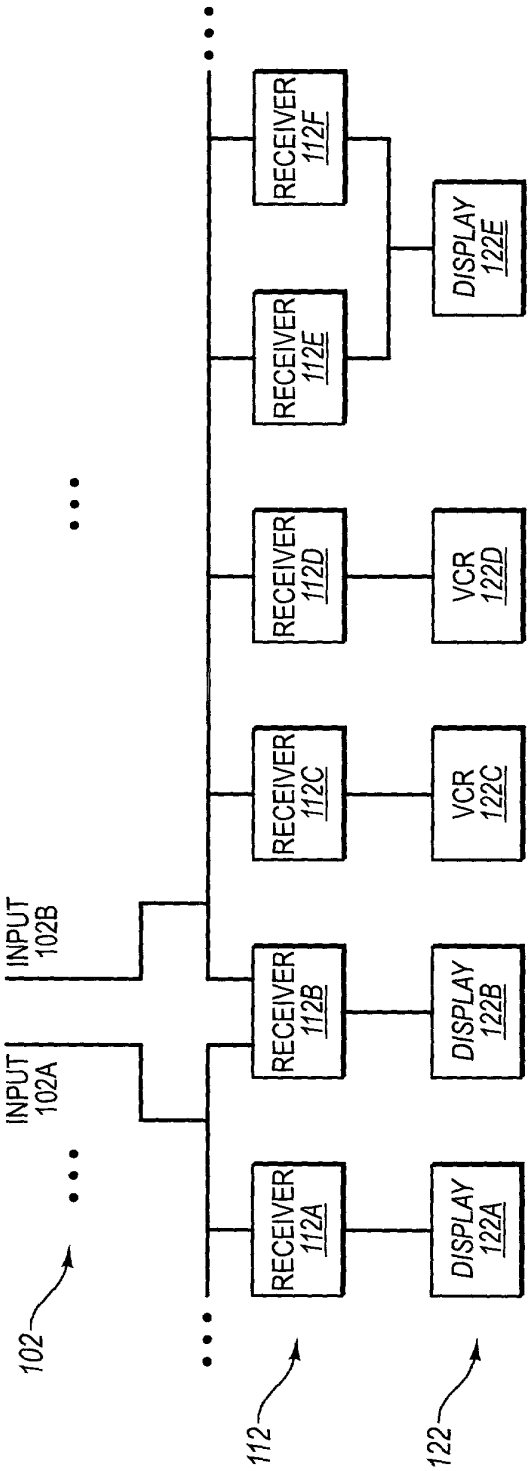


*Fig. 1*
*(PRIOR ART)*

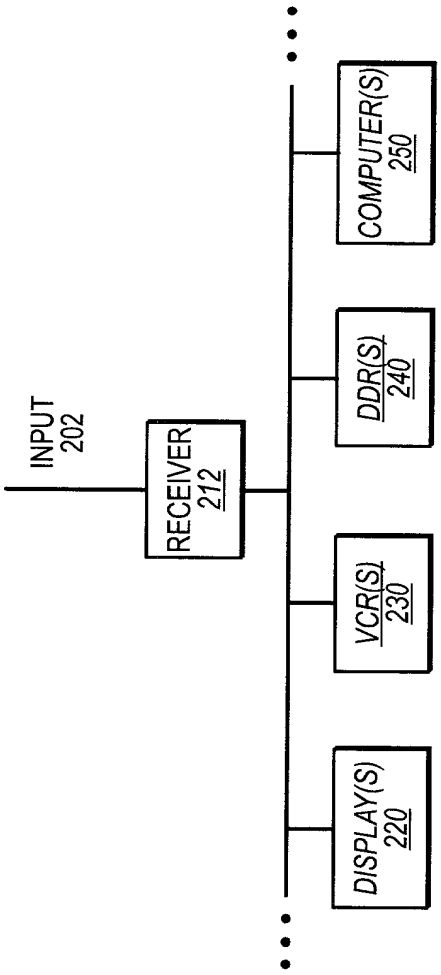


*Fig. 2*

Dell Ex. 1015 - p. 2 of 3

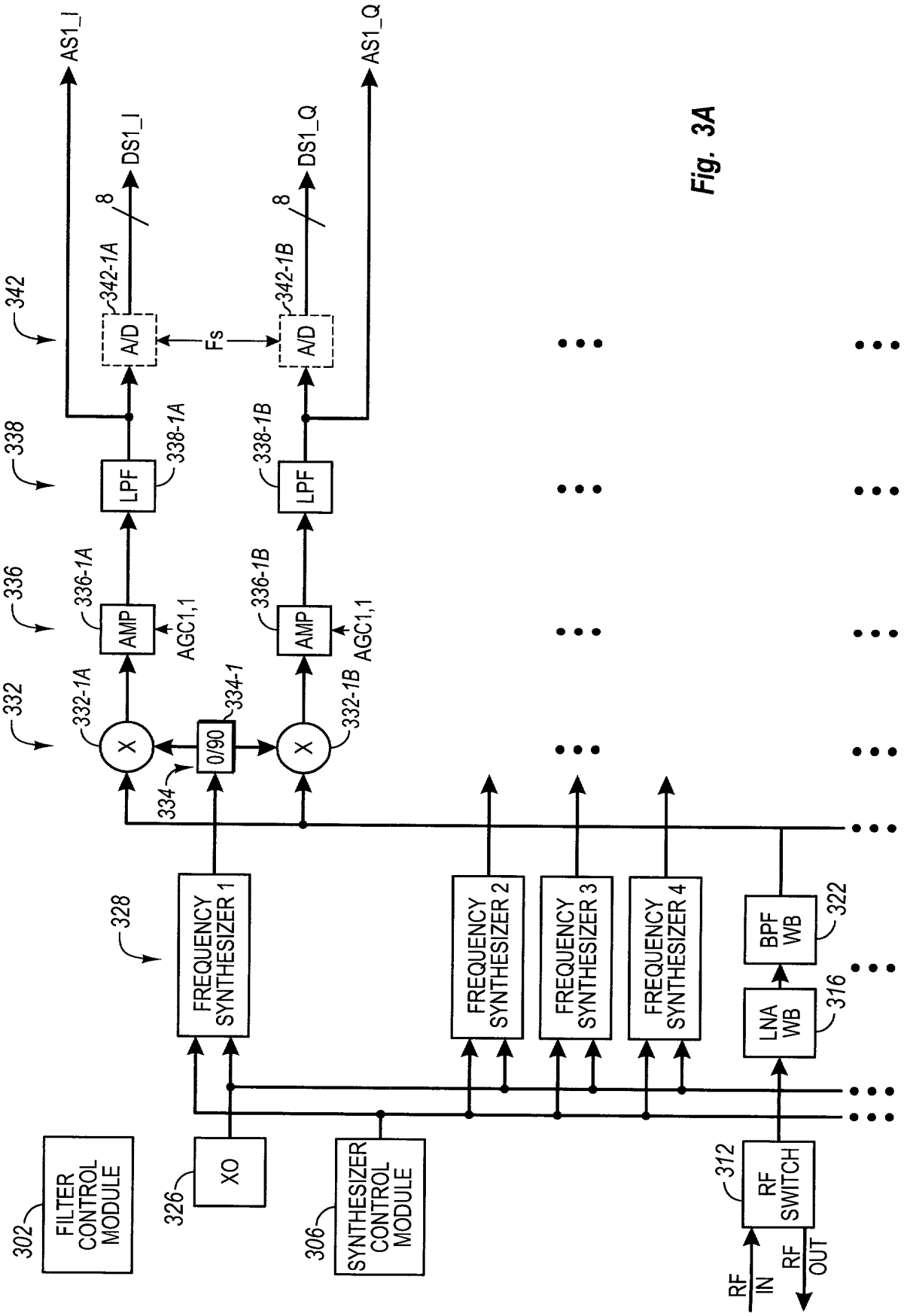
AS1_I
AS1_Q
DS1_I
DS1_Q
342
342-1A
342-1B
A/D
Fs
8
338
338-1A
338-1B
LPF
336
336-1A
336-1B
AMP
AGC1,1
332
332-1A
332-1B
X
334
334-1
0/90
328
FREQUENCY SYNTHESIZER 1
FREQUENCY SYNTHESIZER 2
FREQUENCY SYNTHESIZER 3
FREQUENCY SYNTHESIZER 4
322
BPF WB
316
LNA WB
312
RF SWITCH
RF IN
RF OUT
302
FILTER CONTROL MODULE
326
XO
306
SYNTHESIZER CONTROL MODULE

Fig. 3A

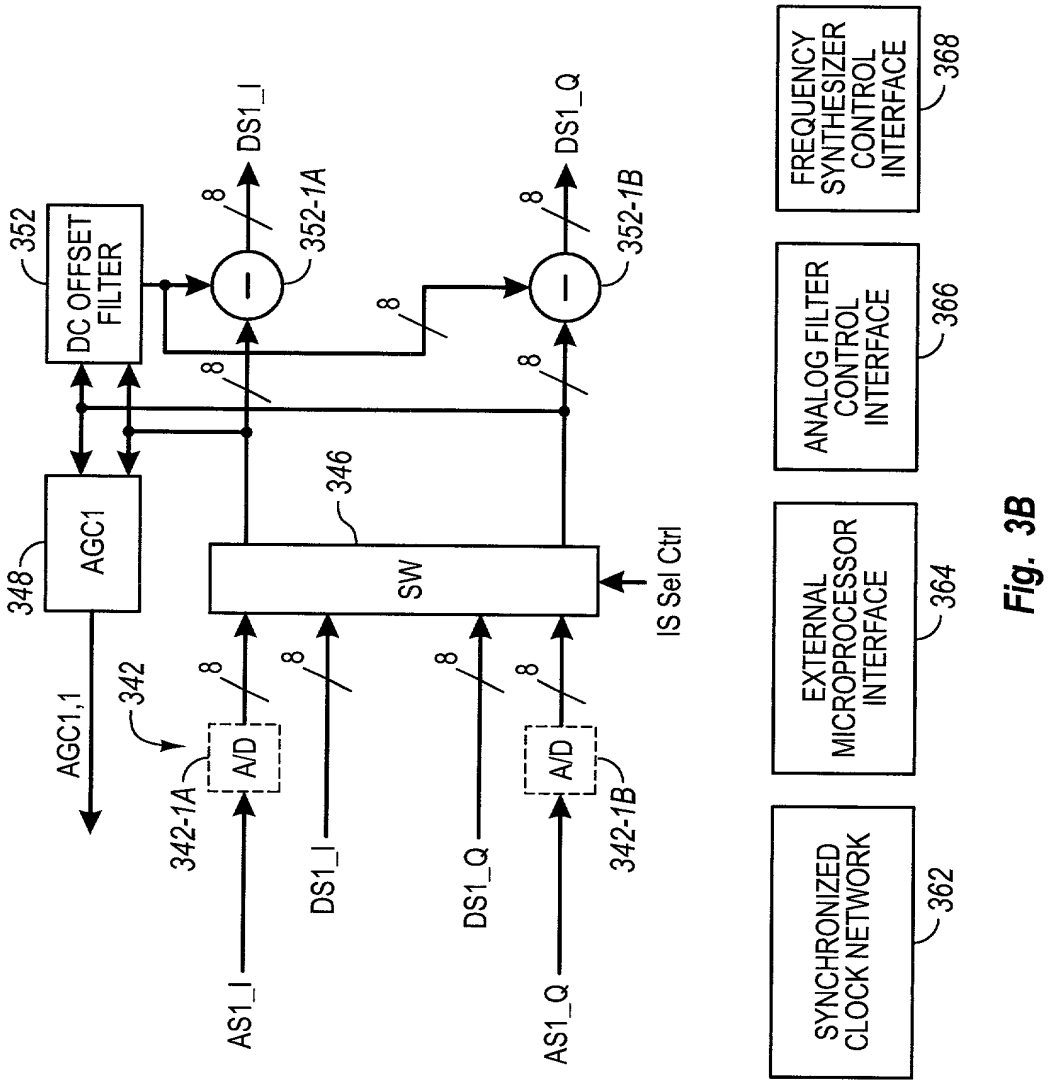
352
DC OFFSET FILTER
348
AGC1
AGC1,1
342
342-1A
A/D
AS1_I
DS1_I
346
SW
IS Sel Ctrl
DS1_Q
342-1B
A/D
AS1_Q
352-1A
352-1B
8
SYNCHRONIZED CLOCK NETWORK
362
EXTERNAL MICROPROCESSOR INTERFACE
364
ANALOG FILTER CONTROL INTERFACE
366
FREQUENCY SYNTHESIZER CONTROL INTERFACE
368

*Fig. 3B*

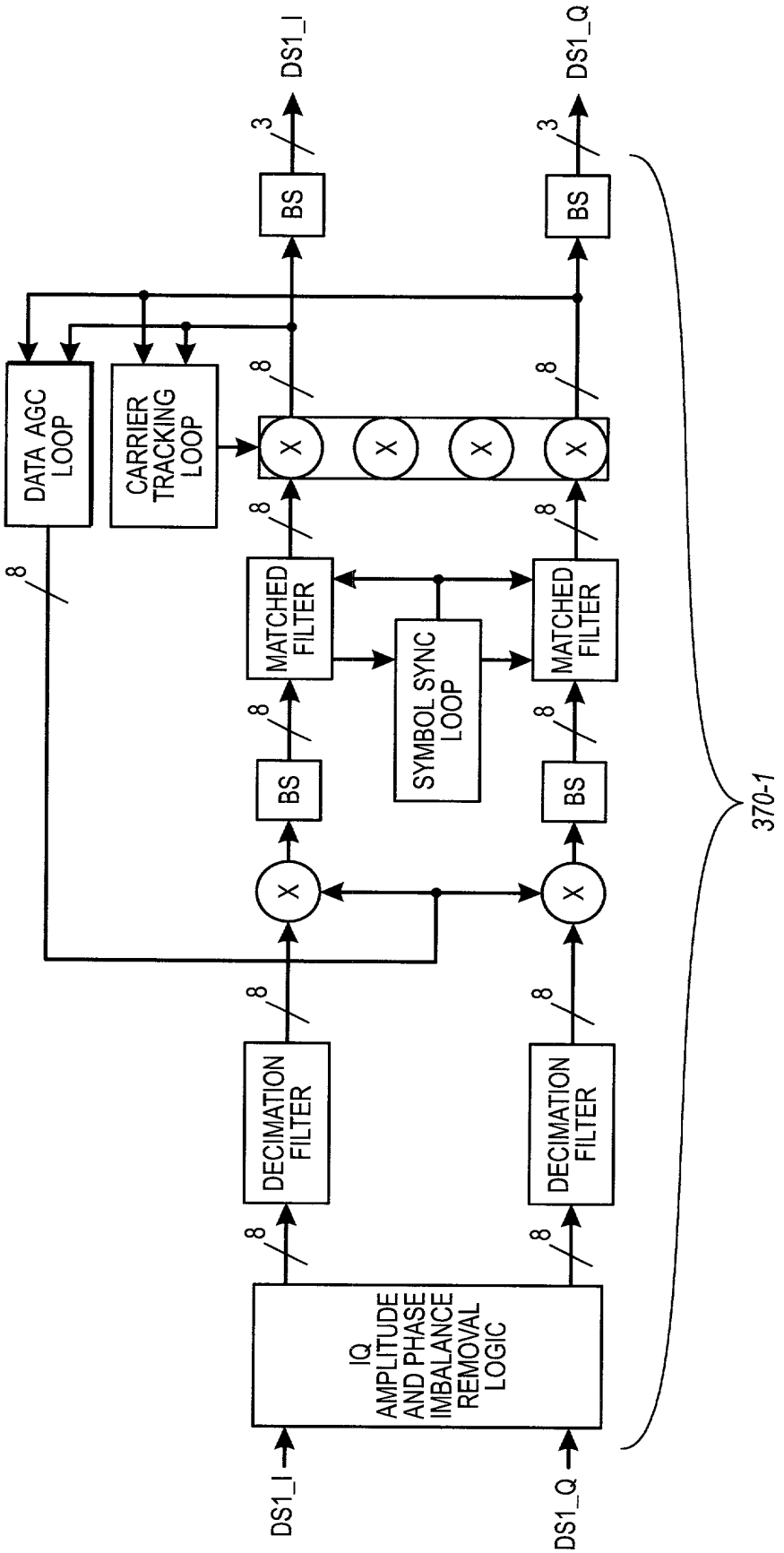
DS1_I
DS1_Q
3
BS
DATA AGC LOOP
CARRIER TRACKING LOOP
8
X
MATCHED FILTER
SYMBOL SYNC LOOP
DECIMATION FILTER
IQ AMPLITUDE AND PHASE IMBALANCE REMOVAL LOGIC
370-1

Fig. 3C

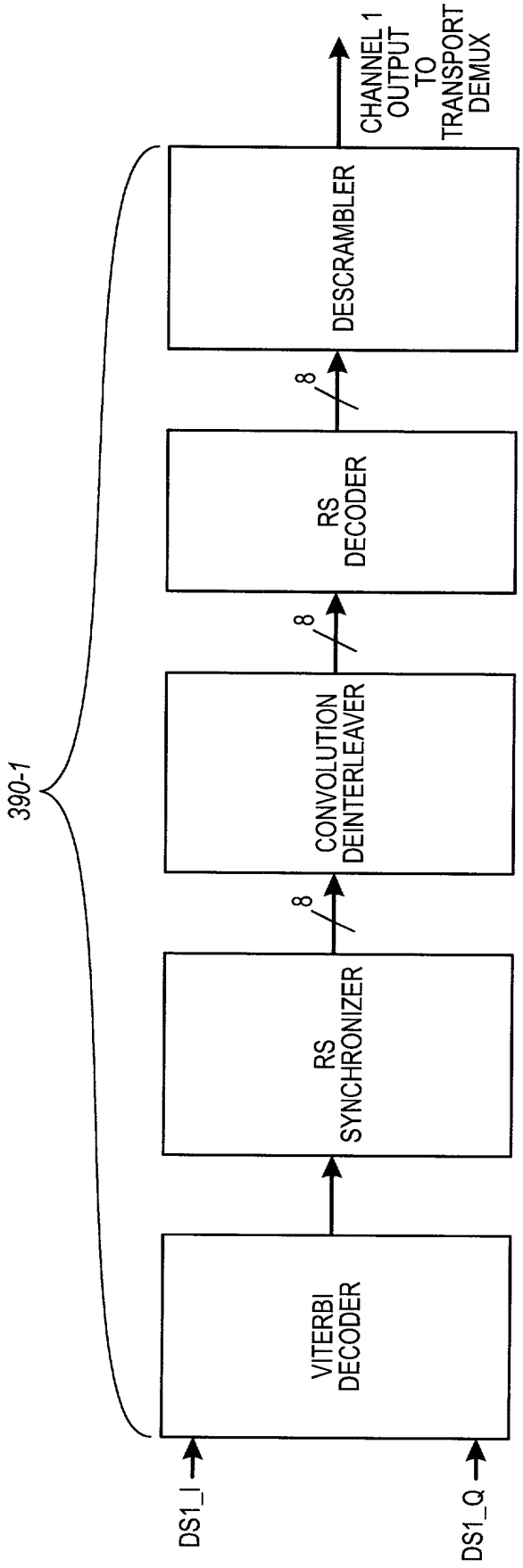
390-1
DS1_I
DS1_Q
VITERBI DECODER
RS SYNCHRONIZER
8
CONVOLUTION DEINTERLEAVER
8
RS DECODER
8
DESCRAMBLER
CHANNEL 1 OUTPUT TO TRANSPORT DEMUX

*Fig. 3D*

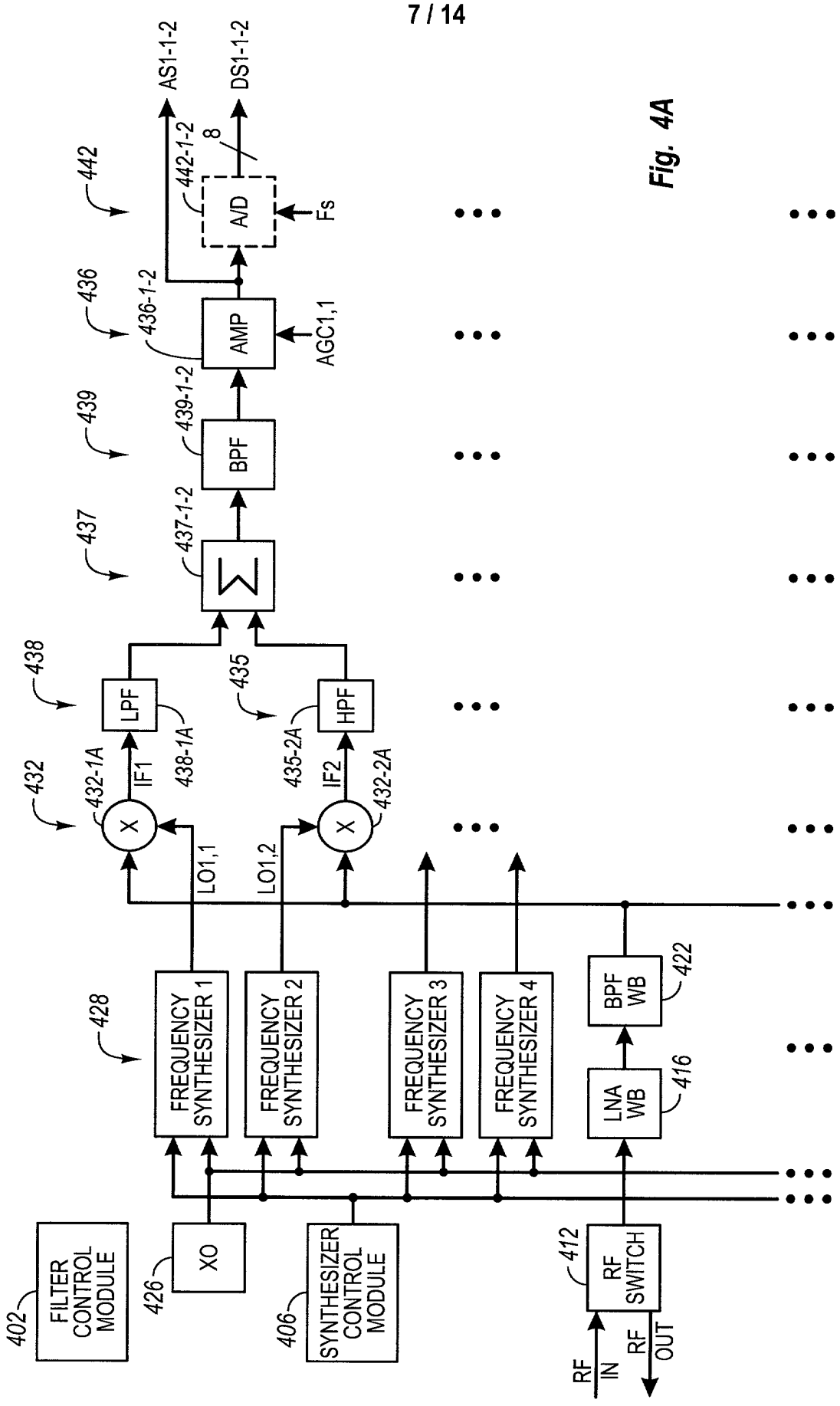
AS1-1-2
DS1-1-2
442
442-1-2
8
A/D
Fs
436
436-1-2
AMP
AGC1,1
439
439-1-2
BPF
437
437-1-2
438
LPF
438-1A
435
HPF
435-2A
432
432-1A
IF1
X
LO1,1
LO1,2
IF2
432-2A
428
FREQUENCY SYNTHESIZER 1
FREQUENCY SYNTHESIZER 2
FREQUENCY SYNTHESIZER 3
FREQUENCY SYNTHESIZER 4
BPF WB
422
LNA WB
416
402
FILTER CONTROL MODULE
426
XO
406
SYNTHESIZER CONTROL MODULE
412
RF SWITCH
RF IN
RF OUT

Fig. 4A

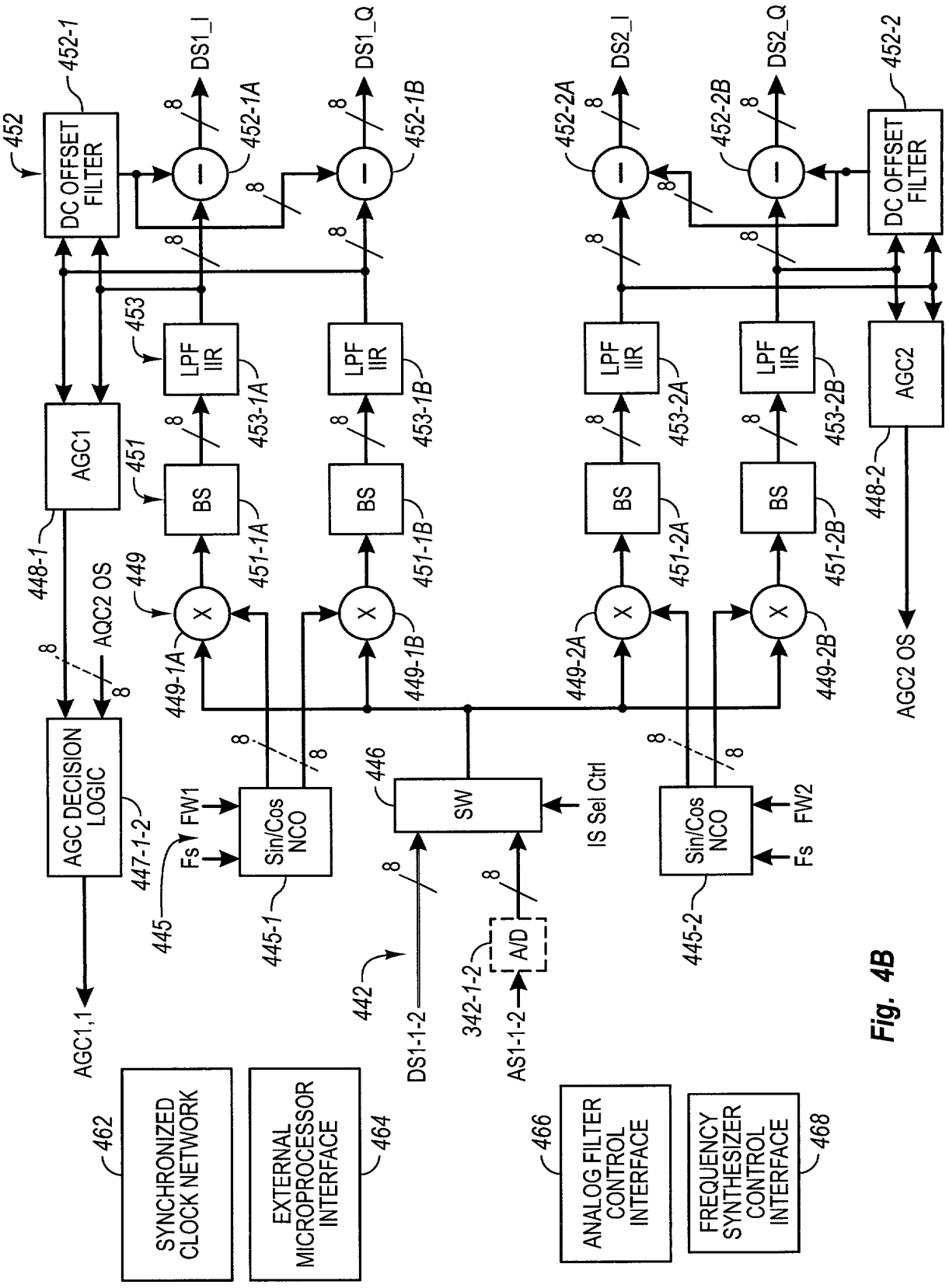
452
DC OFFSET FILTER
452-1
DS1_I
DS1_Q
452-1A
452-1B
453
LPF IIR
453-1A
453-1B
AGC1
451
BS
451-1A
451-1B
448-1
AQC2 OS
449
449-1A
449-1B
AGC DECISION LOGIC
447-1-2
FW1
Fs
Sin/Cos NCO
445
445-1
446
SW
IS Sel Ctrl
442
DS1-1-2
342-1-2
A/D
AS1-1-2
AGC1,1
452-2
DS2_I
DS2_Q
452-2A
452-2B
453-2A
453-2B
451-2A
451-2B
449-2A
449-2B
445-2
FW2
448-2
AGC2
AGC2 OS
462
SYNCHRONIZED CLOCK NETWORK
464
EXTERNAL MICROPROCESSOR INTERFACE
466
ANALOG FILTER CONTROL INTERFACE
468
FREQUENCY SYNTHESIZER CONTROL INTERFACE

*Fig. 4B*

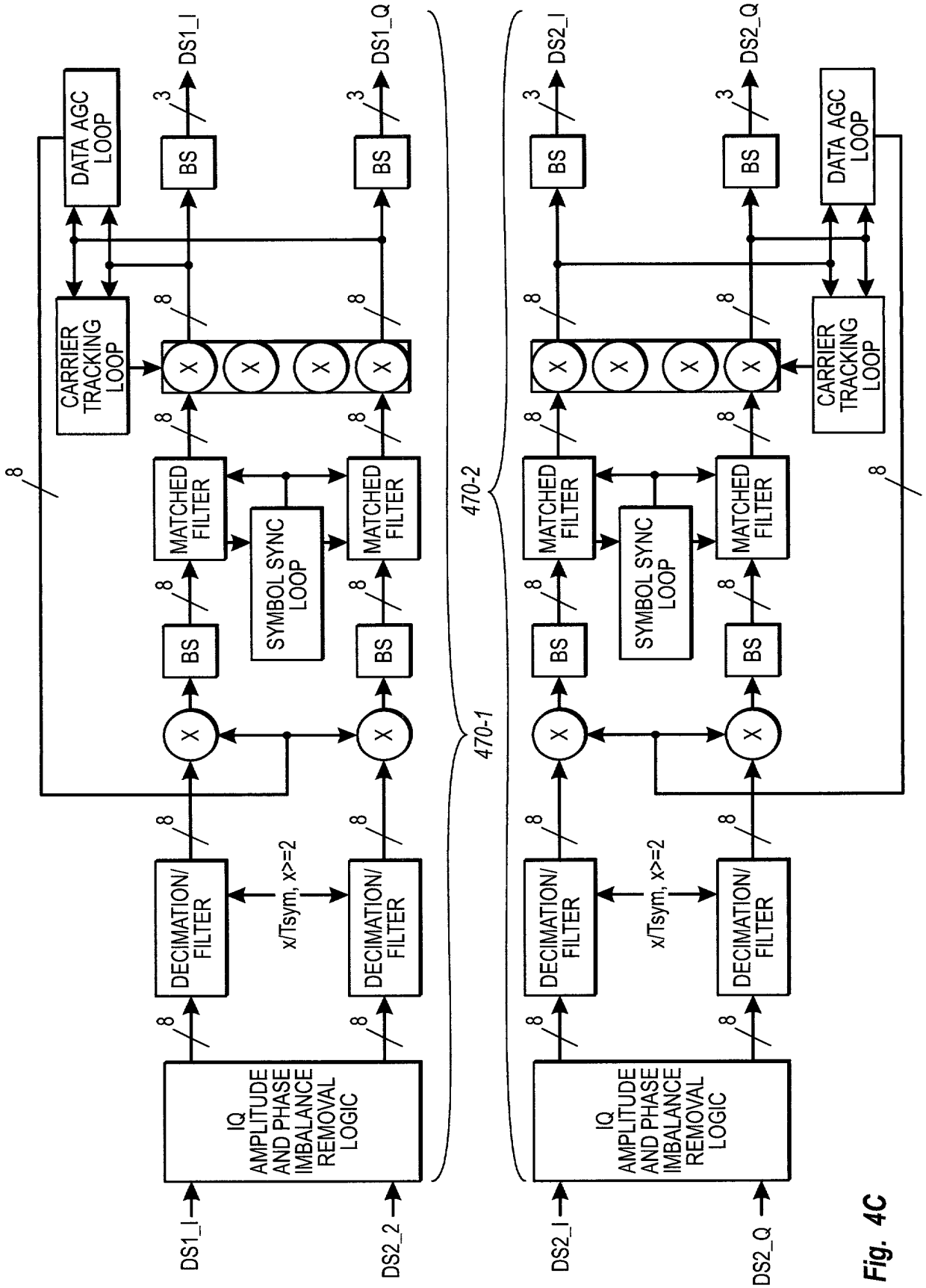
DS1_I
DS2_2
IQ AMPLITUDE AND PHASE IMBALANCE REMOVAL LOGIC
DECIMATION/ FILTER
x/Tsym, x>=2
DECIMATION/ FILTER
BS
SYMBOL SYNC LOOP
BS
MATCHED FILTER
MATCHED FILTER
CARRIER TRACKING LOOP
DATA AGC LOOP
BS
BS
DS1_I
DS1_Q
470-1
470-2
DS2_I
DS2_Q
IQ AMPLITUDE AND PHASE IMBALANCE REMOVAL LOGIC
DECIMATION/ FILTER
x/Tsym, x>=2
DECIMATION/ FILTER
BS
SYMBOL SYNC LOOP
BS
MATCHED FILTER
MATCHED FILTER
CARRIER TRACKING LOOP
DATA AGC LOOP
BS
BS
DS2_I
DS2_Q

Fig. 4C

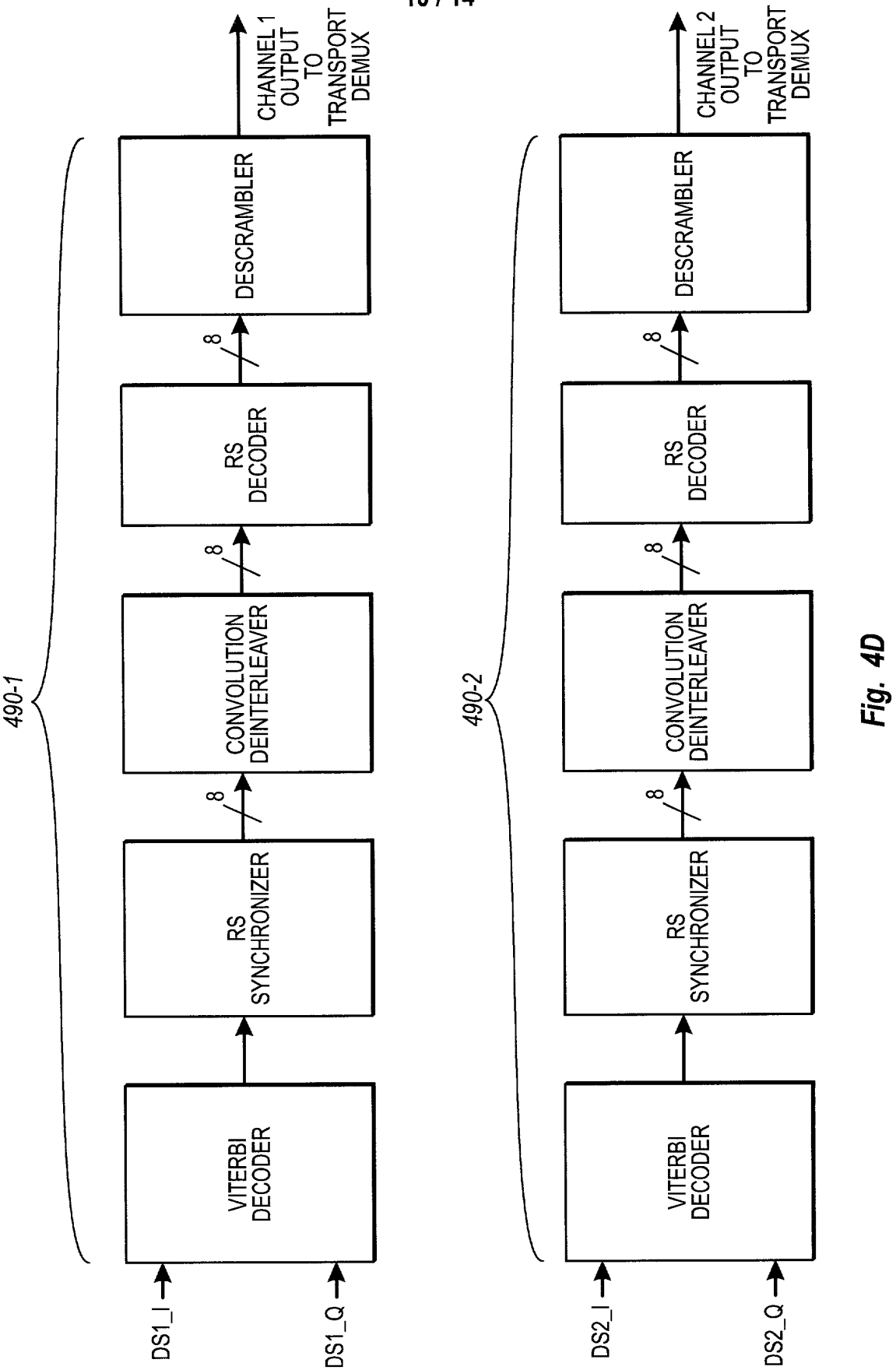
490-1
DS1_I
DS1_Q
VITERBI DECODER
RS SYNCHRONIZER
8
CONVOLUTION DEINTERLEAVER
8
RS DECODER
8
DESCRAMBLER
CHANNEL 1 OUTPUT TO TRANSPORT DEMUX
490-2
DS2_I
DS2_Q
VITERBI DECODER
RS SYNCHRONIZER
8
CONVOLUTION DEINTERLEAVER
8
RS DECODER
8
DESCRAMBLER
CHANNEL 2 OUTPUT TO TRANSPORT DEMUX

*Fig. 4D*

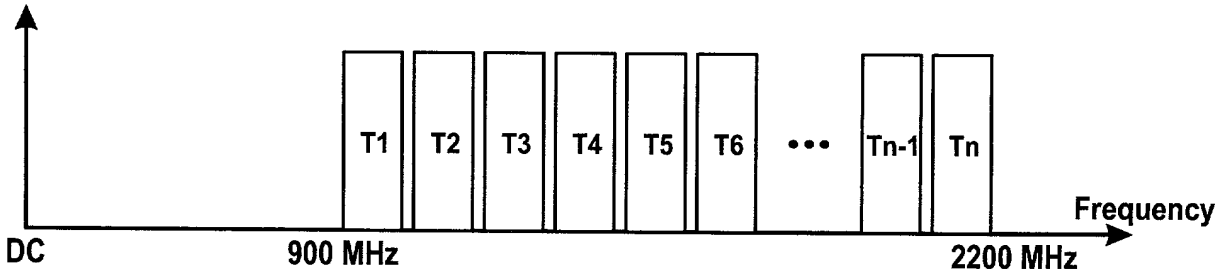


FIG. 5A

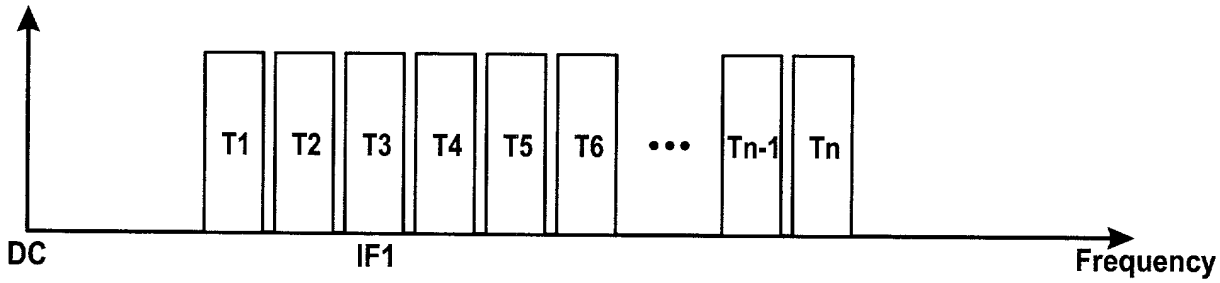


FIG. 5B

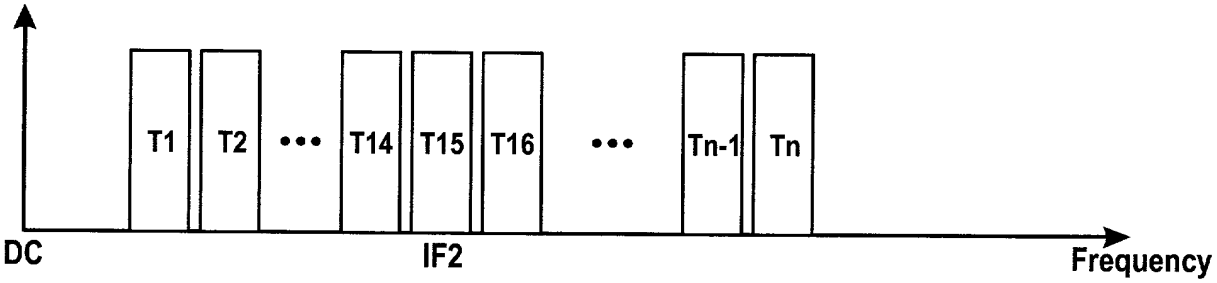


FIG. 5C

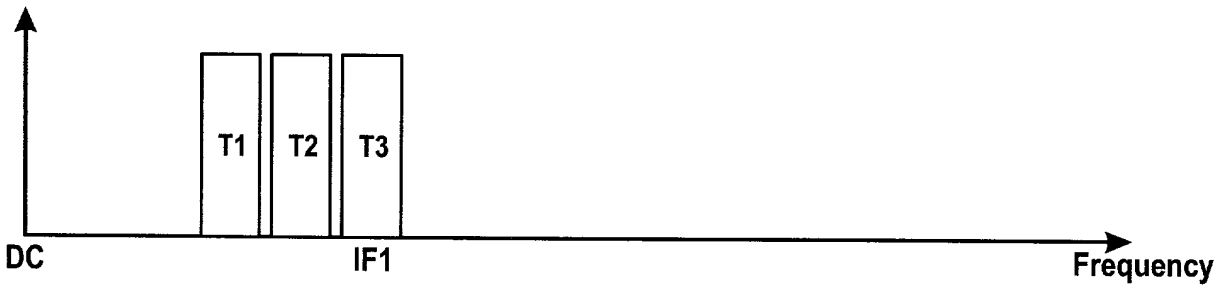


FIG. 5D

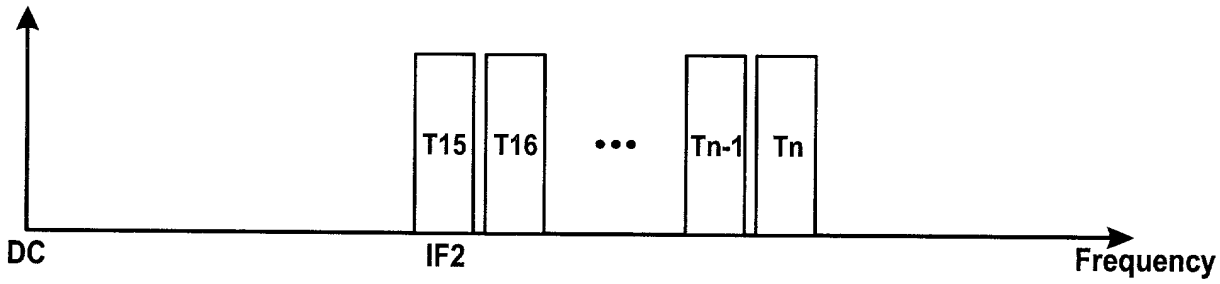


FIG. 5E

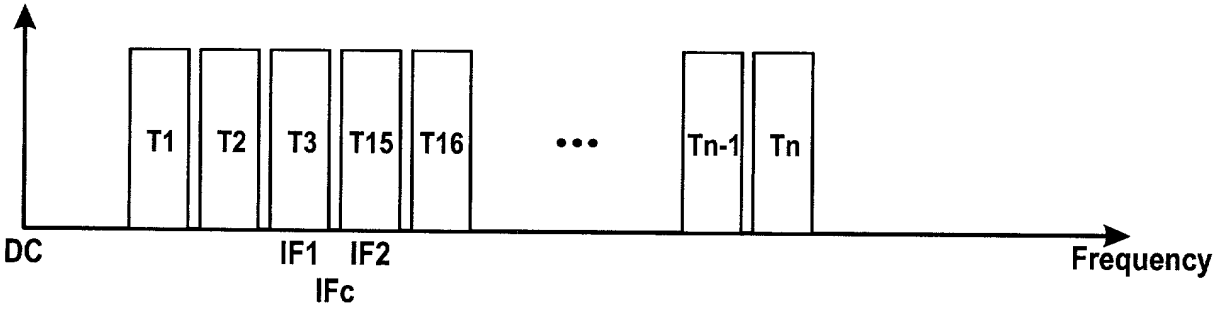


FIG. 5F

FIG. 5G

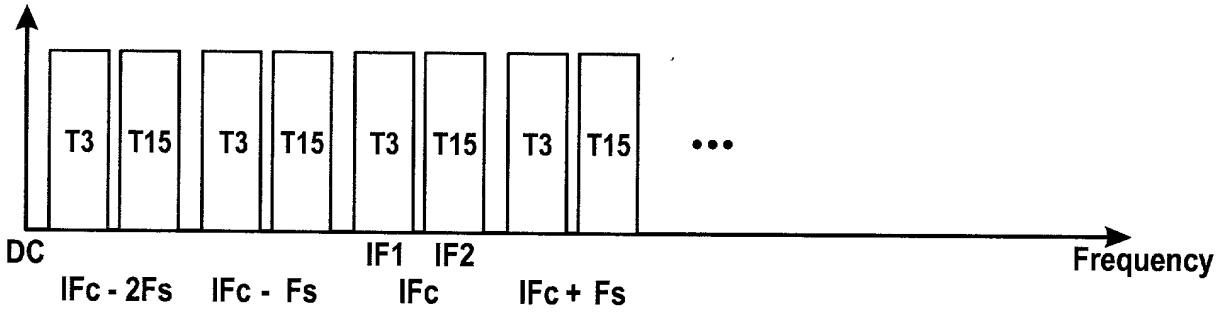


FIG. 5H

Docket No. 14531.109

| Analog Component/Function (8 Independent and Simultaneous Tuners) | Unit Required for IF Sub-sampling (Figs 4A & 4B) | Unit Required for Direct Down Conversion (Figs 3A & 3B) |
|---|---|---|
| | | |
| RF Switch | 1 (412) | 1 (312) |
| Low Noise Amp (WB) | 1 (416) | 1 (316) |
| XO | 1 (426) | 1 (326) |
| Frequency Synthesizer | 8 (428) | 8 (328) |
| BPF (WB) | 1 (422) | 1 (322) |
| Mixer | 8 (432) | 16 (332) |
| Variable (3db Cutoff Freq) LPF | 4 (438) | 0 |
| Variable (3db Cutoff Freq) HPF | 4 (435) | 0 |
| Variable (3db BW) BPF | 4 (439) | 0 |
| Summer | 4 (437) | 0 |
| Control Amplifier | 4 (436) | 16 (336) |
| 90 Degree Phase Splitter | 0 | 8 (344) |
| Analog to Digital Converter | 4 (442) | 16 (342) |
| | | |
| Additional Digital Component/Function | | |
| Multiplier | 16 (449) | N/A |
| NCO (Sin/Cos) | 8 (445) | N/A |
| | | |
| | | |

FIG. 6